Iowa Department of Natural Resources

Guidelines

For

Controlling Canada Goose Populations

And

Injurious Canada Goose Activities

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INTRODUCTION

Canada geese, like most wildlife species, elicit a wide range of responses from the public. Some people love to see them and willing to spend their time and money to improve their habitats. Others see them as unwanted pests that should be controlled or, better yet, eliminated. The later opinion usually arises where geese and people are both trying to use the same area. Conflicts with geese can take many forms: geese eating crops, geese defecating on beaches and golf courses, geese over-grazing lawns, geese chasing people, etc. These conflicts can occur anywhere, but are most frequently found in urban areas where geese and people live in close proximity and compete for the use of limited green space. Unlike their rural cousins, geese that live in urban areas have very high survival and reproductive rates because they are protected from both natural predators and hunters. Consequently, urban goose populations can grow very rapidly. Regulated hunting seasons can control goose populations in much of Iowa. In urban areas, however, where hunting is often not allowed, special Canada goose population control practices may be necessary to keep geese from becoming overabundant.

This document describes the Iowa Department of Natural Resource's (DNR) Canada goose management philosophy and provides specific procedures for implementing practices to control Canada goose populations where geese are considered overabundant and/or their activities pose a risk to human health or safety. These procedures will help ensure that Canada goose population control activities are implemented in a uniform, responsible, and humane manner throughout Iowa.

CANADA GOOSE POPULATION MANAGEMENT

The goal of Canada goose management in Iowa is to maintain the population of giant Canada geese at a sustainable level that provides maximum recreational opportunities consistent with social acceptability.

The objectives to achieve this goal are:

1) To manage Iowa's giant Canada goose population at a level that will improve both consumptive and non-consumptive recreational opportunities, encourage population growth in areas with underutilized habitat, and permit a sustainable annual harvest of approximately 60,000 Canada geese from Iowa's goose population.
2) To improve coexistence and reduce conflicts between people and Canada geese by assisting the public in managing injurious goose activities and/or controlling goose populations in special circumstances.

Any actions to control Canada goose populations or injurious activities should be guided by the following principles:

- Canada geese are native to Iowa and are a valuable natural resource benefiting all Iowans, both recreationally and economically.
- Resident giant Canada geese are distinct from the other subspecies of Canada geese that migrate through Iowa during the spring and fall.

- As migratory birds, giant Canada geese have recreational, economic, and aesthetic values beyond Iowa's borders.
- Population management strategies that include lethal control or capture and relocation are constrained by U.S. Fish and Wildlife Service regulations per authority of the Migratory Bird Treaty Act (1918).
- Giant Canada goose population management in Iowa may be constrained by Mississippi Flyway Council management plans for other subspecies of Canada geese. (The Mississippi Flyway Council consists of 14 state, 3 Canadian provincial, and 2 federal conservation agencies. These agencies cooperatively manage shared migratory bird resources in the central U.S.)
- The resident giant Canada goose population in Iowa can be maintained at a level capable of achieving plan objectives without substantial numbers of Canada geese residing in urban environments or in areas where they may create a threat to human health or safety.
- Municipalities or area managers, such as park rangers, will be primarily responsible for implementing management strategies to achieve desired Canada goose population levels within their jurisdictions.

RESIDENT CANADA GOOSE CONTROL ACTIVITIES

Problems associated with over-abundant geese are usually best resolved by using a variety of standard abatement techniques and population control methods. Most problems require the application of multiple techniques to be satisfactorily resolved; there is often no quick fix or single answer to resolving many human-goose conflicts. It must be explicitly recognized that it is not possible to eliminate all injurious Canada goose activities without eradicating the species; some level of compatibility between goose and human-use of most areas will need to be attained.

Step 1: Evaluate the Problem

Each landowner or community will have a different level of tolerance for Canada geese. That level of tolerance will influence the landowner's or community's desire for specific goose population control strategies. DNR staff will provide advice and guidance to groups and individuals to help them determine how best to balance Canada goose population levels with other property uses or concerns.

Important things to consider when evaluating the problem include:

- The nature and extent of the problem (e.g., human safety, nuisance, etc.),
- The number of geese involved and when and where they occur,
- The number of geese nesting in the area and the number of young they produce,
- The number of geese using nearby surrounding habitats,
- The number of geese desired in the area by the various parties involved,
- The economic impact of the local goose population, both positive and negative,
- The control activities that could be used to alleviate the problem or achieve the desired population level,
- The best times for implementing specific control activities,
- Federal, state and local regulations that may govern the use of specific control activities.

Step 2: Modify Habitats or Goose Behavior to Reduce Conflicts

In many cases, a combination of small changes can go a long way towards resolving conflicts with geese. One of the simplest measures that can be taken to curtail goose use of some areas, particularly parks, is to terminate all supplemental feeding. Many people enjoy feeding wildlife, but it can unnecessarily concentrate birds in parks, on ponds, etc. This activity also makes geese less wary of people, which can lead to aggressive behavior during the breeding season. Concentrating birds can lead to overcrowding and increase the likelihood of disease outbreaks.

Another way to discourage goose use of an area is to alter the environment so that it is less attractive to geese. Geese like large, open grassy areas with easy access to water. Reducing the attractiveness of an area to geese should be one of the first considerations when trying to alleviate injurious goose activities or prevent them from occurring. Designing an area that is unattractive to geese is far easier than reducing use after the fact. Things to consider include:

- Eliminating permanent water sources,
- Eliminating aerators that keep water open during the winter,
- Reducing the area that is mowed or the frequency it is mowed, particularly areas adjacent to water,
- Planting buffers as physical and visual barriers between shorelines and lawns,
- Breaking up large areas of lawn with shrub plantings,
- Erecting fences to preclude geese from walking from ponds to lawns,
- Eliminating waterfowl nesting structures that geese might use,
- Eliminating islands in ponds (islands are preferred nesting sites for geese),
- Placing large activity fields, such as soccer fields, away from any ponds,
- Developing specific areas for geese to use and keeping them attractive to geese,
- Rip-rapping pond shorelines with large rocks.

Step 3: Harass Geese to Resolve Conflicts

It is permissible to harass Canada geese without a federal or state permit, provided the geese are not nesting and the harassment does not result in birds being hurt or handled by a person or an agent of a person, such as a dog.

- Trained dogs may be used to chase and harass geese but NOT catch or injure them.
- Noise making devices like propane cannons or cracker shells can provide immediate, albeit short-term, relief from injurious goose activities.
- Temporary fences can be used as barriers to stop geese from accessing specific areas, particularly when the adults are flightless or have goslings.
- Mylar tape, balloons, and scare crows can be used to keep geese from accessing areas.
- Lasers may be used to discourage geese from using nighttime roosting areas.

While the above methods can provide relief from nuisance goose activities, they are not long-term solutions.

Step 4. Implement Actions to Reduce Goose Populations

If geese are chronically over-abundant in an area or pose a threat to human health or safety, a long-term population control program may be the only realistic solution to reduce the population and the resulting human-goose conflicts. Increasing the mortality rate of adult geese and/or reducing reproduction are necessary to suppress a goose population. The most cost-effective way to increase the mortality of adult geese is to allow the birds to be hunted during regular seasons. Municipalities that have large expanses of agricultural land within their boundaries should adopt a "hunting policy" for geese, where it can be safely done, to increase the harvest of the local geese and thereby increase mortality on the birds. Many communities have already established such policies to help reduce local goose populations.

Capturing and translocating geese and lethal control activities, such as oiling eggs or destroying nests, can only be done by DNR staff or licensed Nuisance Wildlife Control Operators with approval by the DNR. Any activity involving the capturing, handling, or euthanization of migratory birds requires both federal and state permits.

Guidelines for destroying goose nests or capturing and translocating geese are provided in the following chapters. NOTE: ALL NEST DESTRUCTION OR TRANSLOCATION PROGRAMS MUST BE APPROVED BY THE LOCAL DNR WILDLIFE BIOLOGIST PRIOR TO BEING INITIATED.

CANADA GOOSE POPULATION CONTROL METHODS

Resident Canada geese flourish in urban environments where they have few natural predators and are protected from hunting. The only way to reduce populations of resident Canada geese is to substantially reduce the reproductive rate or increase the adult mortality rate, or a combination of the two.

Reducing reproductive rates with sterilization products, like Nicarbazin, has not been shown to be effective outside of controlled situations. Addling eggs, however, is a proven method for reducing the egg-hatching rate and thus production. Young-of-the-year geese can also be captured annually and moved to under-populated areas to reduce production, a process commonly referred to as translocation. (Canada geese imprint on the area where they learn to fly; when they reach reproductive age they return to the release site to nest.). Translocation programs, however, require a long-term commitment (at least 10 years) to substantially reduce a population unless they are coupled with methods to increase adult mortality.

Capturing and moving adult Canada geese is only a temporary fix to overabundant goose problems. Unless adult geese are moved more than 100 miles and subjected to additional mortality, they will return to the capture site soon after regaining their flight feathers. Removing adult geese via translocate programs can eventually reduce a local goose population IF the removal program is implemented annually for 10 or more years and additional geese do not immigrate into the area to use the vacated habitat. In situations where the geese pose a threat to human health or safety and immediate population reduction is deemed necessary, lethal control of adults through euthanasia may be necessary. If such a program is required, DNR Wildlife staff will implement it.

Manipulating Canada Goose Nests

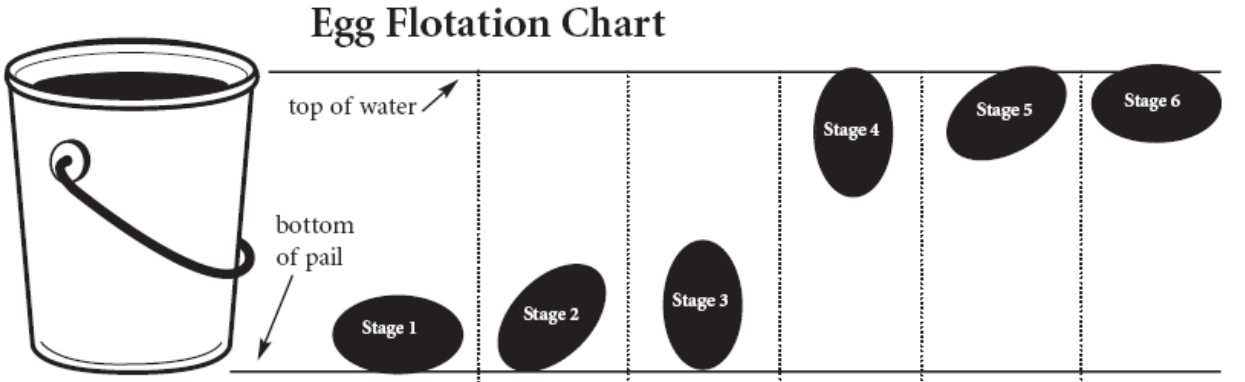
Manipulating nests is an effective way to control Canada goose populations in localized areas. Eggs must be addled or replaced with dummy eggs, however, so that the goose continues to incubate and does not abandon the nest site to renest somewhere else. Most geese will not attempt to renest after they have been incubating for 18-21 days because their egg follicles have started to dry up. Egg addling renders eggs inviable, thereby stopping development and subsequent hatching.

General Requirements for Nest Manipulation

- When implementing a nest manipulation program, NWCO must carry a copy of their NWCO permit and an approved copy of the *Resident Canada Goose Nest Manipulation Application and Report Form* with them, indicating the number of nests and eggs that can be destroyed at each project site (see Appendix C). This application can only be approved by a DNR Wildlife Biologist.
- Prior to implementing a nest manipulation program, permission must be obtained to access all the land on which the geese are nesting. Identify landowners that disagree with the program and any other potential conflicts. Objections to the nest manipulation program should be handled by the agency or person requesting the action. If a conflict

arises, the NWCO should stop the project, avoid confrontations, and contact the appropriate authorities.

- Nests must be flagged and recorded on a map of the treatment area. Flagging the nests insures they can be relocated on return visits.
- The incubation stage of the eggs must be determined and recorded (see nest destruction form in Appendix C). This is done by "floating" the eggs and using the attached chart (Fig. 1) to determine the incubation stage. In the rare instances when the first day of incubation is known (the day the last egg is laid in the nest is the first day of incubation), the incubation stage can be determined using a calendar.
- A follow up visit is required at each nest to gather the eggs for proper disposal, thereby forcing the goose to abandon the nest site.



Approximate embryo age	0-3 days	4-8 days	9-13 days	14-18 days	19-23 days	24-27 days
Days to wait before removing eggs and destroying nest	20	15	10	5	0	0

Source: Missouri DOC

Figure 1. Incubation Stage Determination Using the Egg Floatation Method

Egg Addling, Replacement, and Nest Termination

Egg Oiling

Anyone oiling eggs must carry and follow the APHIS Tech Note "Egg Oil: An Avian Population Control Tool" (Appendix B) to ensure proper handling and use of the oil. Only 100% corn oil may be used. Eggs may be oiled during development stages 1 through 4. Eggs at stages 5 and 6 that have not pipped may be removed and disposed of properly.

Egg Shaking

Eggs at stages 2 and 3 can be addled by shaking. Vigorous shaking (until sloshing sounds can be heard in the egg) detaches and mixes the yolk and albumen, thereby destroying the embryo. This process takes several seconds for each egg. Nests with eggs at stage 1 should be revisited in 3 days to a week, at which time the eggs can be successfully shaken. Nests

with eggs at stage 4 should be left as is for 4 days to a week until they reach stage 5. Eggs at stages 5 and 6 that have not pipped may be removed and disposed of properly.

Egg Piercing
Egg piercing or puncturing is done by pushing a thin, strong pin or needle through the shell and the inner membrane at the bottom (large end) of the egg. This introduces bacteria into the egg. The pin can also be rotated or stirred to insure destruction of the embryo inside the egg. If the hole is large enough to allow fluid to escape, it must be sealed with tape. Leaking eggs will smell and attract predators that may destroy the nest, thereby causing the pair to abandon the site and renest. Egg piercing can be carried out during stages 1 through 4. Eggs at stages 5 and 6 that have not pipped may be removed and disposed of properly.

Egg Replacement
Eggs can be removed from a nest at any time during incubation up until they show signs of hatching. During stages 1 though 4, eggs need to be replaced with dummy eggs to prevent the goose from renesting. Two dummy eggs may be sufficient, but 3 or more will reduce the chances the goose will lay additional viable eggs in the nest. Dummy eggs can be made of wood or plastic, or can be real eggs that are infertile or hard-boiled. Eggs at stages 5 and 6 that have not pipped may be removed and disposed of properly.

Termination of Nests
Once the eggs are at stage 5 or 6, and have not pipped, or they have been addled and the goose has been incubating for at least 3 weeks, the nest may be terminated by removing the eggs and properly disposing of them. Addled eggs should be handled carefully because they may contain gas and could explode. All eggs in the nest must be removed from the site and disposed of properly. The nest material should be removed or scattered on site to ensure the goose will discontinue her nesting attempt. Eggs must be disposed of according to Iowa rule, either by burial {567 IAC 100.4(2)"b"} or landfilling {567 IAC 100.4(455B)}. If taking eggs to a landfill, contact the landfill ahead of time to ensure they will accept the eggs.

Nest Manipulation Program Example:
The following procedure may result in terminating some nests that are less than 3 weeks into incubation, which could result in the goose attempting to renest. Recent research, however, indicates that few geese will attempt to renest after incubating 14-18 days and the success of those renests will be minimal.

Procedure: First, conduct a float test of the eggs. Terminate nests that contain eggs that float. If the eggs do not float, dry and replace the eggs in the nest and spray the eggs with oil as described in the APHIS Tech Note on egg oiling (Appendix B). Flag the nest and recheck it in two weeks to remove the eggs. Repeat this procedure for any new nests that have been initiated or for nests that have had eggs added to them.

Capturing and Moving Canada Geese

Capture and removal of resident Canada geese, also referred to as translocating geese, is a short-term solution to over-abundance goose problems that will only significantly impact the

population if carried out annually for 10 or more years. To increase the effectiveness of this operation, adults should be separated from young-of-the-year and released at different sites. Young-of-the-year geese should only be released at sites where their return at breeding age will not create additional overabundant goose issues. Adults must be transported at least 100 miles from the capture site so that they will be subjected to additional hunting pressure before they can return to the capture site.

General Requirements for Removal of Resident Canada Geese

- When implementing a translocation project, the NWCO must carry a copy of their NWCO permit and an approved copy of the *Resident Canada Goose Translocation Application and Report Form* (Appendix C) specifying the capture site, the number of geese to be moved, and the release site.
- Prior to initiating the operation, all capture and transport equipment must be approved by the area wildlife biologist or technician.
- All persons assisting with the capture and translocation operation must be listed on the *Resident Canada Geese Translocation Application and Report Form*.
- Every effort should be made to minimize stress when capturing and translocating Canada geese.
- Translocation operations should only be implemented when weather conditions are appropriate (see Weather Considerations below).

Capture and Transport Methods

Public Relations
Prior to implementing any translocation program, permission must be obtained to access all the land on which the goose drive will take place. Identify any landowners that disagree with the removal of the geese and any other potential conflict situations. Any objections to the translocation project should be handled by the group, municipality, or agency requesting the removal of the geese. A representative from the requesting group, municipality, or agency should be on hand when the geese are captured to address objections to the translocation program. If a conflict arises, the NWCO should stop the project, avoid confrontations, and contact the appropriate authorities.

Capture Pen Design
Capture pens should be large enough to handle all the geese that can potentially be captured, without crowding them excessively, but not so large that it becomes difficult for the handlers to grab the birds once inside the pen. It is important that the pen be designed so that it doesn't injure the birds. See examples of time tested capture pens in Appendix A.

Capturing and Transporting Geese
Whenever possible, place the capture pen in a shady a location that can be easily accessed by the transport vehicle. This will help reduce stress on the birds when they are handled. If the geese are to be driven out of a pond or lake, locate the capture pen on a gentle slope so the birds can be easily driven into it. Once the geese are in the pen, placing an extra person or two outside the back of the pen will help keep the geese from bunching up against the fencing in one spot. The

geese should be removed from the pen according to size, with the smallest removed first. The transporting truck or trailer should be partitioned so that smaller geese can be kept in separate compartments from adults. Compartments for adult geese should contain at least 1 square foot per bird and no more than 60 birds should be put into a compartment. Compartments for smaller geese can be sized so that they have less than 1 square foot per bird, but more than a half a square foot per bird. When transporting large numbers of geese or moving the birds long distances, the young geese should be further sorted so the birds in each compartment are close to the same size. A large dog kennel works well for transporting extremely young geese. The sides of the transport trailer or truck must have ample openings to allow for air flow, but the front needs to be solid to protect the birds from wind during transport. If the birds are unprotected from the wind during transport, they will bunch up at the back of the compartment. When transporting birds during midday in the direct sunlight, an overhead cover, such as a tarp, should be used to provide shade.

Handling Geese

The usual handling technique is to grasp the goose or gosling by both wings and hold the wings together near and over the back of the body by the humerus bones. With the wings held in this position, the goose can be safely lifted from the ground. Very young goslings, with poorly developed wings, should be picked up by grasping the entire body with one or two hands depending on the size of the bird. Waterfowl studies indicated that handling birds in this manner has no measurable negative impact on their flight capabilities.

When birds need to be carried for long distances, or the handlers have difficulties controlling the geese, it is best to "cradle carry" the birds. Tuck the head under a wing to calm the bird. Pick the bird up by the body with its back to your chest and in an upright position. Wrap both arms around the breast of the bird letting its legs hang down. When you place the bird in the transport vehicle, carefully help the goose get its head out from under its wing.

Determining Age

In most cases, it will be obvious whether a goose is a young-of-the-year or adult bird. As summer progresses, however, some of the geese hatched early in the spring will begin to look like adult birds. Cheek patches and tail feathers can be used to determine age. The feathers of the cheek patch on young birds will be grey while those on the adults will be white. The tail feathers of the young-of-the-year geese will have a v-notch at the tip where a small part of the feather is missing. One such feather is all that is necessary to identify a bird as a young-of-the-year goose. The tail feathers of adults will have smooth edges all the way to their pointed tips.

Weather Considerations

One of the biggest concerns when capturing and translocating geese in the summer is heat stress. To minimize heat stress, translocation operations should start early in the morning. Where long transport times are anticipated, capture operations can be conducted in the late evening so the birds can be transported during the cooler hours after sunset. Use the following guidelines to determine if it is suitable to conduct capture and transport operations.

Transport Standards Relative to the Heat Index

Knowing the Heat Index (HI) is important when deciding if a translocation program should be conducted. The HI is determined by the temperature and relative humidity and can usually be found on most Internet weather sites. The HI can be high even when temperature is relatively cool. For example, a HI of 100 can occur when the temperature is 85º F and the relative humidity is 90% as well as when the temperature is 100º F and the relative humidity is 20%. A HI of 90 occurs when the temperature is 90º F and the relative humidity is 30%, as well as when the temperature is 80º F and the relative humidity is 90%.

- Geese should not be transported if the HI is expected to be 100 or higher.
- When the HI is 90-100, geese should be transported only if the total confinement time (capture + transport time) is less than or equal to 6 hours.
- When the HI is less than 90, geese can be shipped anywhere in the state unless the birds are excessively muddy or capture and handling times are extraordinary long.

Disease

Whenever animals are confined in close quarters under stressful conditions, the spread of disease is a concern. To minimize the chances of spreading diseases during translocation programs, the transport equipment must be cleaned of waste and disinfected on a daily basis. This can be accomplished with a pressure washer and a good detergent soap or bleach mixture.

Euthanization of sick or injured birds

Birds that are obviously sick (have difficulty walking or maintaining head control) or are injured (have broken wings, legs, or large open wounds) should be euthanized on site with discretion. Birds must be euthanized in a humane manner according to AVMA guidelines. Cervical dislocation, decapitation, electrocution, gunshot, and stunning and exsanguination are all considered humane methods for euthanizing geese when carried out in an approved manner.

Disposal of dead birds

Birds not being processed for food must be disposed of by burying (Paragraph 567 IAC 100.4(2)"b") or incinerating (Rule 567 IAC 100.4(455B)) in accordance with Iowa code. Landfilling is an approved method of burial. Be sure to check with the landfill first to see if they will accept dead birds.

Processing for food banks

When birds are processed for food, they must be delivered live to the processor. The processor is responsible for the method of euthanization and disposal of the remains in accordance with state and federal laws.

Band reporting

All birds with bands or other markers need to be reported on the back of the *Resident Canada Geese Translocation Application and Report Form*.

Other Sources of Information for Managing Injurious Canada Goose Activities

Managing Canada Geese in Urban Environments, A Technical Guide
http://dspace.library.cornell.edu/bitstream/1813/66/2/Managing+Canada+Geese

2000 Report of the AVMA Panel on Euthanasia
http://www.avma.org/issues/animal_welfare/euthanasia.pdf

Guidelines for the Humane Killing of Animals for Disease Control Purposes
http://www.aphis.usda.gov/vs/ncie/oie/pdf_files/tahc-guide-hum-kill-jan05_cmt.pdf

Field Manual of Wildlife Diseases: General Field Procedures and Diseases of Birds
http://www.nwhc.usgs.gov/publications/field_manual/index.jsp

Controlling Conflicts with Urban Canada Geese in Missouri
http://mdc.mo.gov/documents/landown/wild/nuisance/canadageese/canada_geese.pdf

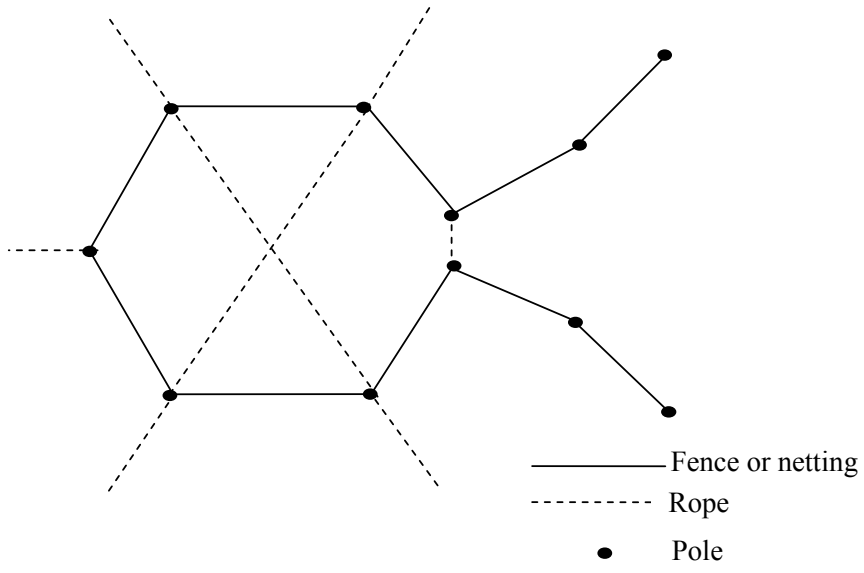
Appendix A

Canada Goose Capture Pen Designs

Portable Canada Goose Capture Pen

A lightweight capture pen can be easily made from plastic fence or netting material with attached support poles. This allows for portability where vehicle traffic is impractical. The capture pen is made of 5-foot wide plastic fencing or netting, with 6-foot stake poles permanently attached. When selecting fence or netting material, it is important to look at its construction. Some plastic fencing materials have sharp edges that can easily cut legs, feet, or bills. A 65-foot length of fencing can create an 11.5 foot diameter capture pen with 15-foot leads. This capture pen encompasses over 100 ft and is capable of holding up to 80 geese. The 0.5-inch conduit poles, spaced at 6 feet intervals, have pointed steel rods attached to their bottoms so they can be easily pushed into the ground. The 2 long ropes that cross the top of pen are attached to the top of opposing poles and staked to the ground in tent fashion. These ropes, in conjunction with a third rope that is used to stake down the rear pole on the capture pen, give the pen ample stability and rigidity. A piece of the fence material is permanently attached to the throat of the pen for use as a door once the birds are inside. Additional 20-50 foot long leads of fence or netting material, approximately 3-feet in height with permanently attached electric fence posts, can be helpful in helping to direct geese into the throat of the capture pen.

Layout of Portable Capture Pen



Trailer Mounted Canada Goose Capture Pen

In situations where a vehicle can be used to access the capture site and minimal handling of the geese is desired or necessary, e.g., to separate them by size or to check for bands, a combination transport trailer/capture pen is a possibility.

The trailer can be a light duty landscaping trailer with a 7-foot x14-foot bed (Fig. 1). This will provide ample room for up to 100 geese. Steel mesh sides, 4-foot high, should be added to the trailer and the box should be designed so that it can be partitioned into 3 segments, using cattle panels, for example. A wind barrier should be attached to the front and a light plywood top constructed so the geese will not escape during transport. This will also keep them shaded.

Figure 1. An example of a potential goose transport trailer (commonly called a landscaping trailer).

To convert the trailer into a capture pen, 5-foot tall plastic fence material can be attached to the back of the trailer and allowed to extend 18-20 feet straight back (Fig. 2). This fencing material should be supported by rebar posts pounded into the ground. An additional section of fence material is attached to the rear of one of the sidewalls to act as a gate. Fifty-foot leads, made of 3-foot high plastic fencing, should be added to the back of the capture pen to help funnel the geese into it. The rear divider or tail gate must be in place when the birds are driven into the capture pen. This will enable personnel to remove any small geese from the flock before herding them into the trailer.

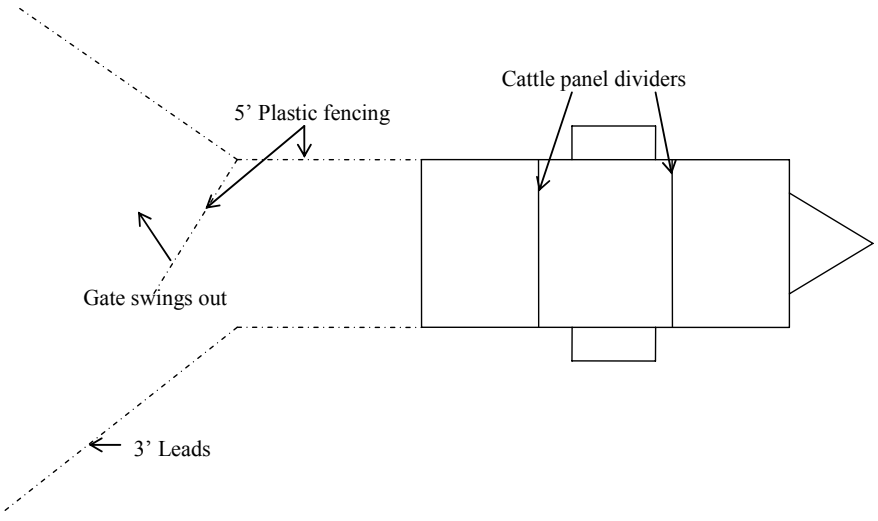


Figure 2. Conversion of a transport trailer to a capture pen/transport trailer (drawing is not to scale).

Appendix B

APHIS Tech Note
Egg Oil: An Avian Population Control Tool

This Tech Note must be carried by individuals engaged in egg oiling as an addling technique.

TECH NOTE Wildlife Services APHIS

United States Department of Agriculture

Animal and Plant Health Inspection Service

Date 1 April 2001

Egg Oil: An Avian Population Control Tool

The Animal and Plant Health Inspection Service's Wildlife Services (WS) program uses many methods to manage populations of gulls, waterfowl, and other birds in areas where they create problems. Methods include trapping and relocation, surgical sterilization, mechanical scare devices, repellents, and hunting. However, these methods, and others that reduce or prevent eggs from hatching-such as shaking, freezing, addling, nest destruction, and egg removal-are labor intensive and may not be effective in operational programs.

The application of various oils (of mineral and vegetable origin) to eggs during the nesting season to prevent hatching is less labor intensive. In addition, this method has an advantage over nest destruction or egg removal because nesting birds are encouraged to continue incubation, often well beyond the normal time for hatching. With nest destruction or egg removal, birds often renest.

On March 6, 1996, the U.S. Environmental Protection Agency (EPA) published in the Federal Register a notice exempting certain materials from regulation under Section 25(b) of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended. This notice allowed corn oil to be used without EPA regulation as long as the uses met certain qualifications: they were not related to public health, efficacy data were available, and certain labeling requirements were met.

This tech note addresses the requirements of the March 6,1996, EPA notice so that corn oil (hereafter referred to as "egg oil") can be used to treat the eggs of nesting gulls, waterfowl, and other birds. Egg oil will reduce reproductive success and, therefore, reduce the populations of birds that are causing problems. Laboratory and field studies conducted by WS's National Wildlife Research Center show that egg oil is 95- to 100-percent effective in preventing the hatching of treated eggs. The active ingredient is 100-percent food-grade corn oil.

Endangered Species Considerations

Before using egg oil, consult with appropriate wildlife authorities to ensure that the use of this product presents no hazard to threatened or endangered species.

It may be necessary to obtain a permit from the U.S. Department of the Interior's U.S. Fish and Wildlife Service and/or the applicable State or local wildlife agency before egg oil can be used. Also, contact the appropriate State regulatory agency to assure that egg oil can be used in the State under a FIFRA Section 25(b) exemption. Obtaining all required permits and licenses is the responsibility of the applicator.

General Information

Egg oil must be used as described in this tech note to conform to the FIFRA Section 25(b) exemption requirements specified by EPA. A copy of this tech note must be in the possession of any individual applying egg oil. Egg oil is natural, food-grade corn oil. When applied to incubating eggs, it blocks the pores in the eggshells and asphyxiates the developing embryo. Because the eggs are not otherwise disturbed, incubating birds will generally continue incubation to the expected hatching date and beyond, preventing or reducing the potential for renesting.

Obtaining Egg Oil

Applicators can obtain egg oil from any retail or wholesale supplier of groceries or baking or cooking supplies. Any commercially available brand of 100-percent food-grade corn oil may be used. Other pure vegetable oils and vegetable-oil mixtures are not covered by this tech note and may not meet the EPA exemption authorized by Section 25(b) of FIFRA.

Equipment

Egg oil may be applied to incubating eggs by any means that allows about the same amount of oil to be applied to each egg without excessive contamination of the nest and surrounding area. The most effective application equipment is a pressurized backpack or hand-held sprayer that holds from 1 to 2 gallons of egg oil. Sprayers should be pressurized to between 15 lb / in^2 and 40 lb / in^2 and should be calibrated to deliver between 3 to 6 ml / sec. The spray wand should contain a tip that produces a fan or circular pattern.

Application

Monitor the breeding and nesting activity of birds targeted for treatment with egg oil. To be most effective, application of egg oil should be made between the fifth day after the laying of the last egg in a clutch and at least 5 days before anticipated hatching. Treat all eggs in a nest at the same time, and do not move or turn eggs. For colonial nesting birds, such as gulls, newly completed clutches may have to be treated at 10-day intervals to assure complete coverage. For pressurized sprayers, place the wand tip from 6 to 8 inches above each egg and apply an appropriate amount of egg oil. The amount of egg oil used varies with egg size. Treat goose eggs with approximately 7 ml / egg oil per egg and gull eggs with 2 ml / egg.

Storage and Disposal

Store oil in the original container. Recycle containers or dispose of them in an appropriate landfill.

Potential Hazards

Hazards to applicators are not expected unless the person is allergic to corn oil. Because egg oil applied to the eggs of any bird will result in embryo death, applicators should take care to identify and mark the nests of nontarget birds in mixed colonies so nontarget species are not treated. Do not spray or apply egg oil to anything other than eggs. Do not apply directly to water.

Further Information

Additional information on this product can be found in the April 1994 ADC Final Environmental Impact Statement (Appendix P), in Material Safety Data Sheets supplied by the Pocatello Supply Depot, and in the 1995 Handbook on Prevention and Control of Wildlife Damage. Specific information on this product can be obtained through the National Wildlife Research Center (NWRC) (970-266-6000) or through the NWRC web site http://www.aphis.usda.gov/ws/nwrc. For further information about the availability of this product, contact your WS State Director, or the Pocatello Supply Depot.

Appendix C

Application and Report Forms

Resident Canada Geese Nest Manipulation Application and Report Form

APPLICATION

NWCO Name: _____ **NWCO Permit #:** _____

SCGCP#: _____

(SCGCP # is received after NWCO satisfactorily completes 2 nest manipulation projects. SCGP # = "Training" if NWCO has not satisfactorily completed 4 translocations projects.)

List all persons assisting with the nest manipulation on the back of this form

Municipality, organization, or individual requesting assistance:

(Include name, title, address, and phone number of the principal contact person.)

_____

_____

_____

Location: (Provide local area name or address as well as county, twsp and section - attach map) _____

_____

_____

_____

Number of nesting pairs: _____

Assessment of damage: (Provide detailed information justifying the request)

_____

_____

Abatement techniques that were tried to alleviate problem:

_____

_____

NWCO Signature: _____ **Date**_____

For DNR use only

APPROVAL

Approved dates for action: _____ Is supervision required? (circle one) Yes / No

No. nests that can be destroy: _____ Disposal of eggs: _____

_____

Area Biologist_____Signature_____Date_____

COMPLETION REPORT

Date of completed: _____

Number destroyed: Nests _____Eggs _____

For DNR use only Nest manipulation project was completed: ☐ Satisfactorily ☐ Unsatisfactorily

Signature_____ Date:_____

Distribution: Original to Depredation Biologist. Copies to NWCO, Area Wildlife Biologist, and State Waterfowl Biologist.

List of Persons Assisting NWCO With Nest Manipulation Project

Name	Address

Resident Canada Geese Translocation Application and Report Form

APPLICATION

NWCO Name: _____ **NWCO Permit #:** _____

SCGCP#: _____

(SCGCP # is received after NWCO satisfactorily completes 4 translocations projects. SCGP # = "Training" if NWCO has not satisfactorily completed 4 translocations projects.)

List all persons assisting with the capture and removal on the back of this form

Municipality, organization, or individual requesting assistance: _____

(Include name, title, address, and phone number of the principal contact person.)

_____

_____

_____

Location: (Provide local area name or address as well as county, twsp and section.(attach maps)

_____

_____

_____

Number of geese causing injurious activity: Adults_____Young_____

Assessment of damage: (Provide detailed information justifying the request)

_____

_____

Abatement techniques that were tried to alleviate the problem:

_____

_____

NWCO Signature: _____ **Date**_____

For DNR use only

APPROVAL

Approved dates for action: _____ Is supervision required? (circle one) Yes / No

No. geese to capture: Adults_____ Young_____

Release site for adult geese: _____

_____

Release site for young geese: _____

_____

Area Biologist_____Signature_____Date_____

COMPLETION REPORT

Date translocation was completed: _____

Number geese captured and released: Adults_____Young_____

Number of geese that died: Adults_____Young_____

Number of banded geese captured (report bands on back of page):_____

For DNR use only

Translocation project was completed: ☐ Satisfactorily ☐ Unsatisfactorily

Signature_____ Date:_____

Distribution: Original to Depredation Biologist. Copies to NWCO, Area Wildlife Biologist, and State Waterfowl Biologist.

List of Persons Assisting NWCO With Translocation Project

Name Address

Banded Geese Captured

Band Number	Release Site		Band Number	Release Site

Egg/Nest Destruction Data Sheet

NWCO Name_____ NWCO Permit #_____

Location _____ Year _____

	First visit			Second visit			Last visit
Nest #	Date of visit	# of eggs	Incubation Stage*	Date to revisit	# of eggs**	Incubation Stage*	Date to revisit

* If following the nest manipulation example and the eggs float, add 2 weeks to the date and record in the next "date to revisit" column. If they sink, record a T in the next "date to revisit" column and terminate the nest.

** If there are more eggs in the nest on the second visit, it is a good indication the nest was not being incubated during the first visit and therefore will require one more visit to terminate.

Iowa Department of Natural Resources

Resident Canada Goose Control Permit - Annual Activity Report

NWCO Name _____ Address: _____

NWCO Permit # _____ SCGCP# _____ For Calendar Year _____

		Nest Destruction		Translocations		Mortalities	
Complainant	Location*	# Nests	# Eggs	Adults	Young	Adults	Young

*Use more than one line if necessary to adequately describe the location. Attach additional pages if needed.

Special Canada goose control permit reports are due by Nov. 31 of each year.

Mail original to Depredation Biologist, 21792 490th St., Chariton, IA 50049, and copy to State Waterfowl Biologist, 1203 N. Shore Drive, Clear Lake, IA 50428.